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EXAMINER	
METZMAIER, DANIEL S	

ART UNIT	PAPER NUMBER
1796	

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09/16/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/831,566	REETZ ET AL.	
	Examiner	Art Unit	
	Daniel S. Metzmaier	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *42,43,50 and 61* is/are allowed.

6)☒ Claim(s) *21-24,26-30,32-41,44-49 and 51-60* is/are rejected.

7)☒ Claim(s) *25 and 31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 21-61 are pending.

Claim interpretation

1. The term colloid has not been specifically defined in the specification and therefore takes the plain meaning in the art. Colloid is generally understood to be a system having a dimension of less than one micron.

The claims are directed to metal oxide colloids of groups VIb (Cr group), VIIb (Mn group), VIII (Fe, Co, Ni group), Ib (Cu group) or IIb (Zn group) of the Periodic Table.

It is noted that claim 21 contains a stabilizer and that claim 27 does not contain a separation step. Although, it is further noted each of the examples sets forth a colloid powder.

Based on applicants' amendments and the claims 53 and 54, it is clear that applicants intend the claims to encompass both colloidal solutions and colloidal powders. Applicants' amended proviso statement pertains to the colloidal powder form only and not to the colloidal solution. Since the colloidal solution would clearly be redispersible in water and the claims clearly (see claim 53) read on both, the proviso statement does not appear to distinguish the claims wherein the prior art includes an aqueous based colloidal solution.

Claims 55-57 are directed to a colloidal powder (claim 55), a process comprising redispersing said colloidal powder (claim 56) and a colloidal solution of said redispersing process (claim 57).

Claims must be given their broadest reasonable interpretation consistent with the specification, during patent examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 21, 23-24, 26-27, 29-30, 32-35, 37, 46-47, 51-57 and 60 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Moumen et al, “New Synthesis of Cobalt Ferrite Particles in the range of 2-5 nm: Comparison of the Magnetic Properties of the Nanosized Particles in

Dispersed Fluid or in Powder Form", Chemical Materials, 1996, 8, pages 1128-1134. See the abstract and page 1129, Experimental Synthesis. Absent a teaching to the contrary, it is logical to conclude the methods of Moumen et al are performed at room temperature, which includes about 20^{o} to 25^{o} C (see instant claim 35).

See Moumen et al (page 1131, VI Comparison of the magnetic Behavior of Nanosized Particles Dispersed in an Aqueous Fluid and in Powder Form; page 1130, V Synthesis and Characterization of $CoFe_2O_4$ Nanosized Particles) for the water solution re-dispersibility.

To the extent the Moumen et al reference differs from the claims in that the colloids are re-dispersible in a solution consisting of water, applicants have not shown said limitation of a physical property of the claimed compositions that are the same or substantantially the same compositions would not be redispersible in water. A compound and all of its properties are generally inseparable. *In re Papsech*, 315 F2d. 381, 137 USPQ 43, (CCPA 1963).

Furthermore, attention is directed to section V on page 1130 of Moumen et al, which discloses the formation of a redispersed nanoparticles made with CH_3NH_3OH and $Co(DS)_2$ and $Fe(DS)_2$, wherein DS is dodecyl sulfate. The nanoparticles are redispersed by removing the supernatant and redispersing in pure bulk aqueous phase to obtain a suspension.

6. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moumen et al, "New Synthesis of Cobalt Ferrite Particles in the range of 2-5 nm: Comparison of the Magnetic Properties of the Nanosized Particles in Dispersed Fluid or in Powder

Form", Chemical Materials, 1996, 8, pages 1128-1134. See the abstract and page 1129, Experimental Synthesis.

While Moumen et al may not conduct their process at a temperature between 50 and 90° C, it would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to perform the process of Moumen et at a high temperature to increase the rate of hydrolysis and/or condensation. It is well settled that the choice of a suitable or optimum temperature, absent a showing of criticality, is within the ordinary skill level of those skilled in the art.

7. Claims 21-24, 26-30, 32-35, 37-39, 41, 46-48, 53 and 59 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bonnemann et al, WO 96/17685. See examples 5, 6, and 8-10. Since the claims define the colloid rather than a colloid powder and without separation, it is reasonable to conclude that the oxide is inherent to the Bonnemann et al process as an intermediate for subsequent processing. It is clear said oxide is formed otherwise there would exist nothing to be reduced in the reduction step of streaming H_2 for 3 or 4 hours.

Attention is specifically directed to applicants' step (b) of claim 38, which reduces the metal oxides. Furthermore, attention is directed to the Tables of Bonnemann et al and particularly example 17, denoted at page 11 as performed in air.

To the extent Bonnemann et al reference differs from the claims in the concentration of the metal oxides in the colloids claimed as a composition comprising predominately metal oxide, applicants have not shown said concentration limitation to distinguish the claims.

8. Claims 44, 58 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonnemann et al, WO 96/17685, as applied to claim 21-24, 26-30, 32-35, 37-39 and 41 above, and further in view of Day et al, US 4,197,187. See Bonnemann et al, examples 5, 6, and 8-10.

To the extent Bonnemann et al differs from claim 44 in the incorporating the metallic colloids into sol-gel supports, it would have been obvious to one of ordinary skilled in the art at the time of applicants' invention was made to employ a sol-gel alumina of the Day et al reference (example) as a support in the process of Bonnemann et al rather than the carbon support for the advantages pointed out in the Day et al reference (column 4, lines 46-88), i.e., better selectivity and improved yields in hydrocarbon conversion. Bonnemann et al (page 6, lines 6-11) clearly contemplates the use of metal oxide carriers. Please compare and contrast with instant page 7, last full paragraph description of supports.

To the extent all the metals therein consist of those selected from the group consisting of Pt, Ru, Sn, Fe, and W, Bonnemann et al clearly suggest these as possible reactive metal for forming said colloids.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.

1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 21-24, 26-30, 32-35, 37-39, 41 and 58-60 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 6,090,746. Although the conflicting claims are not identical, they are not patentably distinct from each other because the breath of the instant claims encompasses the patented claims and the colloids inherently would be present in the 6,090,746, processes.

11. Claims 27-30, 32-37, 40, 47, 49 and 51 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3-8, and 10-18 of copending Application No. 10/599,434. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending methods are encompassed by the instant methods to VIII group metal oxides.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

12. Claims 42-43, 50 and 61 are allowed.

13. Claims 25 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

14. Applicant's arguments filed 29 June 2010have been fully considered but they are not persuasive.

15. Applicants (pages 14 to 18) assert Moumen et al lacks a disclosure that the Moumen et al materials are redispersible in a liquid consisting of water.

Initially, applicants' arguments relate to two different cases including; (1) a **colloidal solution**, which would not exclude the use of the glycol and would be readily redispersible in water, and (2) a **colloidal powder**, which appears to relate more closely to applicants' arguments. This is clearly evidenced by applicants' new claims 53 and 54.

Furthermore, an aqueous colloidal solution is clearly being expected to be redispersible in water as mere dilution.

Also, it does not logically follow that the addition of ethylene glycol for the mitigation of agglomeration would result in a lack of redispersibility. The claims do not define the conditions of redispersibility, which may include infinite dilution and/or mechanical agitation. Both would be expected to affect agglomeration and redispersibility. Applicants do not define the stability of the resulting redispersed colloid, which would include momentarily redispered materials.

16. Applicants (pages 14 to 18) further direct attention to Moumen, *J. Phys. Chem.*, 100: pp. 1867-1873 (1996), wherein it is argued that the use of a 50% solution of ethylene glycol in water to prevent agglomeration.

Applicants appear to be equating redispersibility with agglomeration prevention. Applicants have not shown that the particles of the Moumen et al reference redispersed in water would agglomerate to the degree that it would prevent redispersibility. While the additional reference cited by applicants teaches that the mixed solvent mitigate agglomeration, it does not exclude redispersibility in water. The claims do not distinguish the redispersibility.

Lastly, there is no evidence of record to show the compositions of Moumen et al, when added to an unspecified amount of water, would not be dispersed. As pointed out previously, in colloid chemistry, "Colloidal compositions are generally dispersible in a substance that makes up their external phase. To the extent applicants intend powders, the claims should so state." See page 4, lines 10-12 of Office Action mailed March 21, 2006. Applicants do not contest said generally accepted characteristic.

17. Applicants (pages 17 and 18) assert the examiner has not presented a *prima facie* case to shift the burden of non-obviousness to applicants. This has not been deemed persuasive since as set forth in MPEP 2112, particularly 2112.01, the examiner has met the burden of presenting a *prima facie* case of anticipation and/or obviousness regarding the instant facts. Therefore, the burden shifts to applicants.

18. Applicants (pages 18 and 19) assert claim 36 is unobvious for the reasons previously presented in applicants' response. This has not been deemed persuasive for the reasons set forth herein above.

19. Applicants (pages 19 and 20) assert the Bonnemann et al reference does not disclose the formation of "a composition of metal oxide colloids" and that the Bonnemann et al reference discloses the reduction of metal salt solutions rather than the formation of a metal oxide colloid as claimed. This has not been deemed persuasive for the following reasons:

A review of applicants' claims will show that (taking the independent claims) the concentration of the metal oxide in the colloid is not defined. The reference sets forth a number of examples wherein measures to exclude the oxygen is made, i.e., formation under argon. Thereby, the formation of oxides is avoided. Example 17 of table 6 (see example 5, page 11, lines 14-15) is formed in air and reduced by hydrogen. Oxides would have clearly been formed in said particle formation followed by reduction by hydrogen. Also, attention is directed to example 6 (pages 11 and 12), which employs chloroplatinic acid and palladium nitrate.

Applicants have not shown said reference process to exclude said claimed materials. Furthermore, the claims employ open transitional language, i.e., "comprising", which would not exclude the further presence of metal salts. A review of the process claims show the formation of the metal oxide from the addition of a base to the metal salt solution.

A further review of the Bonnemann et al reference (examples, particularly at least example 5) is the formation of an aqueous solution of $PtCl_2$ with the further addition of a base, i.e., Li_2CO_3, followed by addition H_2. Since the compositions are made by the same process, it would be reasonable to conclude metal oxides are formed. These metal oxides are then reduced by the addition of the H_2. Applicants have provided no evidence to refute the Offices' premise and/or conclusions. A holding of inherency may be based on scientific reasoning and does not require the claimed limitations *ipso verba*.

20. Applicants (pages 19 and 20) assert it is the metal salt rather than the metal oxide, which is reduced, said reduction leading to the reduced metal colloid rather than the metal oxide colloid. While metal salt can be reduced, the formation of oxides would have been expected in the Bonnemann et al reference as well by the reaction of the salt in solution with a base followed by the reduction of any oxides formed therein.

Applicants further assert for a holding of inherency, the inherent property must necessarily be present. Based on the scientific reasoning and consideration of the reference as a whole a prima facie case showing inherency is deemed proper and has been maintained. Attention is further directed to instant claim 39, which employs hydrogen.

21. Applicants (page 20) assert the rejection of claim 44 as obvious over Bonnemann et al reference should be withdrawn in view of the arguments presented in response to the anticipation rejection. This has not been deemed persuasive and said arguments have been addressed above.

22. Applicants (pages 20 and 21) assert the Obviousness Double Patenting rejection as obvious over Bonnemann et al reference should be withdrawn in view of the arguments presented in response to the anticipation and obviousness rejections. This has not been deemed persuasive and said arguments have been addressed above.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daniel S. Metzmaier/
Primary Examiner, Art Unit 1796

DSM